

(Translation)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>K-84CARBIDE</b>	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. <b>PCT/JP03/12873</b>	International filing date (day/month/year) <b>08.10.2003</b>	Priority date (day/month/year) <b>08.10.2002</b>
International Patent Classification (IPC) or national classification and IPC  <b>Int. Cl.<sup>7</sup> G09F13/16, G09F13/22, G02B5/128</b>		
Applicant <b>Nippon Carbide Kogyo Kabushiki Kaisha</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>10</u> sheets, including this cover sheet.  <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of _____ sheets.
3. This report contains indications relating to the following items:  I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input checked="" type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand  <b>08.10.2003</b>	Date of completion of this report  <b>18.05.2004</b>
Name and mailing address of the IPEA/ <b>Japan Patent Office, 4-3, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo 100-8915 Japan</b> Facsimile No.	Authorized officer  <b>Keiji AKAGI</b> Telephone No. <b>03-3581-1101 Ext.3264</b>

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP03/12873

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☐ the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement) under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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## IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☒ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

The matter common to Claims 1 – 36 is “a retroreflective display device equipped with radio frequency identification unit or units, which comprises at least a surface-protective layer, information display layer, retroreflective layer and a back-protective layer, and is characterized in that one or more radio frequency identification units each enclosing radio frequency identification integrated circuit or circuits are provided on or between these layers and one or more communication antennas connected to said radio frequency identification integrated circuits are provided.”

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV

However, a retroreflective display device equipped with radio frequency identification unit or units which comprises "an information display layer and a retroreflective layer" and which is characterized in that "one or more radio frequency identification units each enclosing radio frequency identification integrated circuit or circuits are provided on or between these layers and one or more communication antennas connected to said radio frequency identification integrated circuits are provided" is disclosed in US 5608391A (Minnesota Mining and Manufacturing Company), 1997.03.04., the whole text, Figs. 8 – 9b. Furthermore, it is a practice widely adopted, to provide protective layers on display devices.

Then, the above "matter common to Claims 1 – 36" stays within the bounds of prior art, and is not a special technical characteristic feature in the sense referred to in the second sentence of PCT Rule 13.2.

Therefore, there is no matter which is common to all of the claims.

There existing no other common matter which can be considered as a special technical characteristic feature in the sense of said second sentence of PCT Rule 13.2, no technical relevancy in the sense of PCT Rule 13 can be found among those differing inventions.

Accordingly, clearly Claims 1 – 36 fail to satisfy the unity of invention requirement.

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV

Claims 1 – 36 are classified as follows.

The special technical characteristic feature common to Claims 1 – 3 is: “in a retroreflective display device, the position at which communication antenna or antennas are provided is specified.”

These claims present a group of inventions which are so relevant as to constitute a generally accepted concept of a single invention.

The special technical characteristic feature common to Claims 4 – 13 is: in a retroreflective display device, the retroreflective element is specified.” These claims present a group of inventions which are so relevant as to constitute a generally accepted concept of a single invention.

The special technical characteristic feature common to Claims 14 – 15 is: “two or more radio frequency identification units are provided.” These claims present a group of inventions which are so relevant as to constitute a generally accepted concept of a single invention.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV

The special technical characteristic feature common to Claims 16 – 18 is: “in an internally illuminated retroreflective display device equipped with radio frequency identification unit or units, which is characterized by having an internal illumination type sign structure in which an illuminator is disposed at the back of a retroreflective layer, said retroreflective layer being retroreflective to the light coming from the front of the sign and transmissive to the light from the interior of said sign, said structure comprising said surface-protective layer, information display layer, retroreflective layer, back-protective layer, a radio frequency identification unit or units, an illuminator, and a housing to enclose and support the foregoing, the position at which the communication antenna or antennas are installed is specified.” These claims present a group of inventions which are so relevant as to constitute a generally accepted concept of a single invention.

The special technical characteristic feature common to Claims 19 – 25 is: “in internally illuminated retroreflective display devices equipped with radio frequency identification unit or units, which is characterized by having an internal illumination type sign structure in which an illuminator is disposed at the back of a retroreflective layer, said retroreflective layer being retroreflective to the light coming from the front of the sign and transmissive to the light from the interior of said sign, said structure comprising said surface-protective layer, information display layer, retroreflective layer, back-protective layer, a radio frequency identification unit or units, an illuminator, and a housing to enclose and support the foregoing, the retroreflective element is specified.” These claims present a group of inventions which are so relevant as to constitute a generally accepted concept of a single invention.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV

However, a retroreflective display device equipped with radio frequency identification unit or units which comprises “an information display layer and a retroreflective layer” and which is characterized in that “one or more radio frequency identification units each enclosing radio frequency identification integrated circuit or circuits are provided on or between these layers and one or more communication antennas connected to said radio frequency identification integrated circuits are provided” is disclosed in US 5608391A (Minnesota Mining and Manufacturing Company), 1997.03.04., the whole text, Figs. 8 – 9b. Furthermore, it is a practice widely adopted, to provide protective layers on display devices.

Then, the above “matter common to Claims 1 – 36” stays within the bounds of prior art, and is not a special technical characteristic feature in the sense referred to in the second sentence of PCT Rule 13.2.

Therefore, there is no matter which is common to all of the claims.

There existing no other common matter which can be considered as a special technical characteristic feature in the sense of said second sentence of PCT Rule 13.2, no technical relevancy in the sense of PCT Rule 13 can be found among those differing inventions.

Accordingly, clearly Claims 1 – 36 fail to satisfy the unity of invention requirement.

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV

The matter common to Claims 1 – 36 is “a retroreflective display device equipped with radio frequency identification unit or units, which comprises at least a surface-protective layer, information display layer, retroreflective layer and a back-protective layer, and is characterized in that one or more radio frequency identification units each enclosing radio frequency identification integrated circuit or circuits are provided on or between these layers and one or more communication antennas connected to said radio frequency identification integrated circuits are provided.”



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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-36	YES
	Claims		NO
Inventive step (IS)	Claims	1-36	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-36	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

Document 1: US 5621571 A (Minnesota Mining and Manufacturing Company) April 15, 1997  
Document 2: JP 8-43615 A (Nippon Carbide Kogyo Kabushiki Kaisha) February 16, 1996  
Document 3: JP 2001-151313 A (Toppan Printing Co., Ltd.) June 5, 2001  
Document 4: US 6441551 B1 (3M Innovative Properties Company) August 27, 2002  
Document 5: JP 2001-33609 A (Nippon Carbide Kogyo Kabushiki Kaisha) February 9, 2001

**Claim 1**

The invention of Claim 1 has no inventive step over D1 which is cited in the International Search Report. The invention of Claim 1 does not differ from the matter which is described in D1 except that the former is provided with protective layers, but provision of protective layers in display devices is only a routinely practiced means.

**Claims 2 - 3**

The invention of claims 2 - 3 has no inventive step over D1. Fig. 1b of D1 shows formation of an antenna at the back of the reflective surface of the retroreflective element, and Fig. 9b of D1 shown formation of an antenna on the reflective surface of the retroreflective element.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

**Claims 4 – 5**

The invention of Claims 4 – 5 has no inventive step over D1. Figs. 4 and 4a of D1 illustrate use of cube-corner prismatic retroreflective units, and in col. 5, L 66 – 67 of D1 discloses about total reflection type prismatic retroreflective sheeting.

**Claim 6**

The invention of Claim 6 has no inventive step over D1. D1 describes in col. 6, L. 7 – 10 to conduct vacuum evaporation on prismatic retroreflective sheeting.

**Claim 7**

The invention of Claim 7 has no inventive step over D1. Figs. 2 and 6 of D1 describe use of micro glass bead type retroreflective units.

**Claim 8**

The invention of Claim 8 has no inventive step over D1. Figs. 2 and 6, and col. 5, L. 33 – 48 of D1 disclose formation of reflective coating of vapor deposited aluminium.

**Claim 9**

The invention of Claim 9 has no inventive step over D1. Fig.2 and col. 5, L. 37 – 40 of D1 disclose provision of a spacer layer between microspheres and reflective coating. Moreover, for example, as described in D2 which is cited by International Search Report, in col. 5, L. 13 – 15, no special technical difficulty accompanies to making the spacer layer of resin.

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

**Claims 10 – 13**

The invention of Claims 10 – 13 has no inventive step over D1. D1 describes in col. 6, L.51 – col. 7, L. 4 use of retroreflective sheeting having discontinuous vapor deposited coating layer.

**Claims 14 – 15**

The invention of Claims 14 – 15 has no inventive step over D1 and D3 which is cited by International Search Report. D3 discloses in col. 6, L.41 – col. 7, L. 22 and col.8, L. 5 – 8, provision of an antenna oscillating electromagnetic waves of plural frequencies on metallic articles such as number plates, and adoption of such a construction for also those devices of D1 is easy for skilled artisans.

**Claim 16**

The invention of Claim 16 has no inventive step over D1 and D4 which is cited by International Search Report. While the invention of Claim 16 differs from the matter as described in D1 in that the former has protective layers, provision of protective layers in display devices is no more than a routinely practiced means. The invention of Claim 16 again differs from the matter as described in D1 in that an illuminator is disposed at the back of the retroreflective layer, but D4 describes in col. 11, L. 45 – col. 12, L. 22 and Fig. 4 disposition of an illuminator at the back of the retroreflective layer, and it is easy for skilled artisans to adopt such a construction for the devices of D1.

**Claims 17 – 18**

The invention of Claims 17 – 18 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 2 – 3 and 16.

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

**Claims 19 – 20**

The invention of Claims 19 – 20 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 4 – 5 and 16.

**Claim 21**

The invention of Claim 21 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 6 and 16. Furthermore, to specify the areal ratio of the metallic thin film layer to less than 80% is only a matter of the level which skilled artisans can find after ordinary trial and error.

**Claim 22**

The invention of Claim 22 has no inventive step over D1 and D4. Concerning cube-corner prismatic retroreflective units such as triangular pyramidal cube-corner units, full cube type cube-corner units and the like, all of those are heretofore known, as described in D5 which is cited by International Search Report.

**Claim 23**

The invention of Claim 23 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 7 and 16.

**Claim 24**

The invention of Claim 24 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 8 and 16. Furthermore, to specify the areal ratio of the metallic thin film layer to less than 80% is only a matter of the level which skilled artisans can find after ordinary trial and error.

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

**Claim 25**

The invention of Claim 25 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 10 – 13 and 16. Furthermore, to specify the areal ratio of the metallic thin film layer to less than 80% is only a matter of the level which skilled artisans can find after ordinary trial and error.

**Claim 26**

The invention of Claim 26 has no inventive step over D1 and D4 which are cited by International Search Report. Fig.4 of D4 shows a back-projector type illumination device.

**Claim 27**

The invention of Claim 27 has no inventive step over D1 and D4 which is cited by International Search Report. While the invention of Claim 27 differs from the matter as described in D1 in that the former has protective layers, provision of protective layers in display devices is no more than a routinely practiced means. The invention of Claim 27 again differs from the matter as described in D1 in that an illuminator according to the principle of electroluminescence is disposed at the back of the retroreflective layer, but D4 describes in col. 11, L. 45 – col. 12, L. 22 and Fig. 4 disposition of an illuminator according to the principle of electroluminescence at the back of the retroreflective layer.

**Claims 28 – 29**

The invention of Claims 28 – 29 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 2 – 3 and 27.

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

**Claims 30 – 31**

The invention of Claims 30 – 31 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 4 – 5 and 27.

**Claim 32**

The invention of Claim 32 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 6 and 27. Furthermore, to specify the areal ratio of the metallic thin film layer to less than 80% is only a matter of the level which skilled artisans can find after ordinary trial and error.

**Claim 33**

The invention of Claim 33 has no inventive step over D1 and D4. Concerning cube-corner prismatic retroreflective units such as triangular pyramidal cube-corner units, full cube type cube-corner units and the like, all of those are heretofore known, as described in D5.

**Claim 34**

The invention of Claim 34 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 7 and 27.

**Claim 35**

The invention of Claim 35 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 8 and 27. Furthermore, to specify the areal ratio of the metallic thin film layer to less than 80% is only a matter of the level which skilled artisans can find after ordinary trial and error.

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

**Claim 36**

The invention of Claim 36 has no inventive step over D1 and D4, for the reasons indicated in respect of Claims 10 – 13 and 27. Furthermore, to specify the areal ratio of the metallic thin film layer to less than 80% is only a matter of the level which skilled artisans can find after ordinary trial and error.

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.  
**PCT/JP03/12873**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

“Electron identification unit” in Claim 14 is an error for “radio frequency identification unit”.